Social movements and their knowledge needs – the experience from European Science Shops

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Publication date:
2007

Document Version
Early version, also known as pre-print

Social movements and their knowledge needs – the experience from European Science Shops

Equity, Ethics and Right to Health: Challenges in a Globalized World

Salvador, Brazil, 18 July 2007

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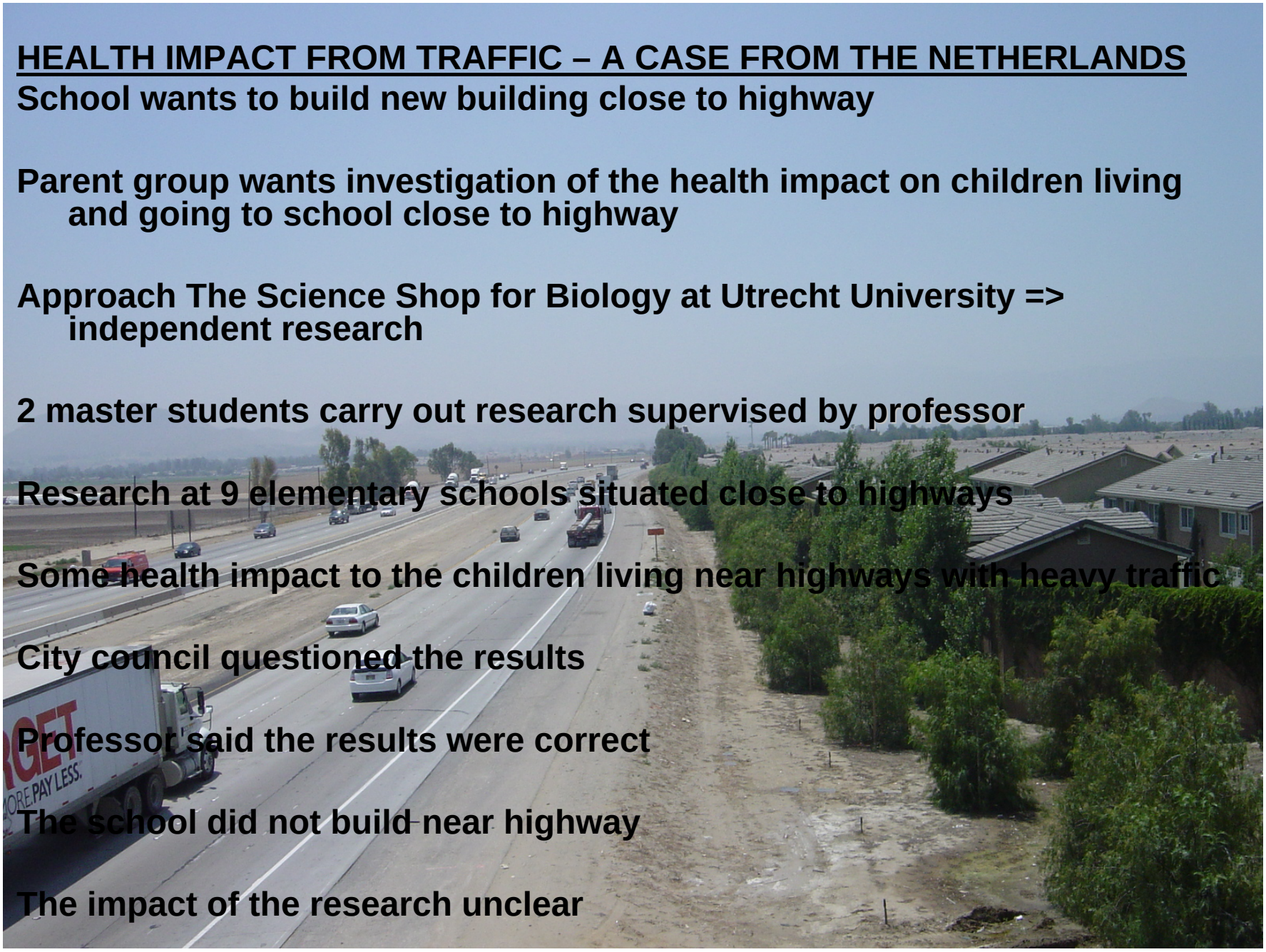
Overview of presentation

- Definition of science shop: research support to civil society
- Cases from the Netherlands and Denmark
- The international network of Science Shops – an invitation
- An overview of health related projects
- Community-based research in Europe
  - A mutual relationship between civil society and university?
- How to consider the need for Science Shops?

The Science Shop at DTU – an open door to the university for civil society

- Started 1985. Associate professor, 2 part-time assistants. Affiliated to one of the departments
- Aims:
  - To give citizen groups access to the resources of the university
  - To contribute to the on-going renewal of the University based on the knowledge needs of citizens
  - To give the students opportunity to gain experience with co-operation with citizens
- Around 15 projects every year of different types:
  - Student projects; researcher supervision and advice; referring to other institutions



HEALTH IMPACT FROM TRAFFIC – A CASE FROM THE NETHERLANDS

School wants to build new building close to highway

Parent group wants investigation of the health impact on children living and going to school close to highway

Approach The Science Shop for Biology at Utrecht University => independent research

2 master students carry out research supervised by professor

Research at 9 elementary schools situated close to highways

Some health impact to the children living near highways with heavy traffic

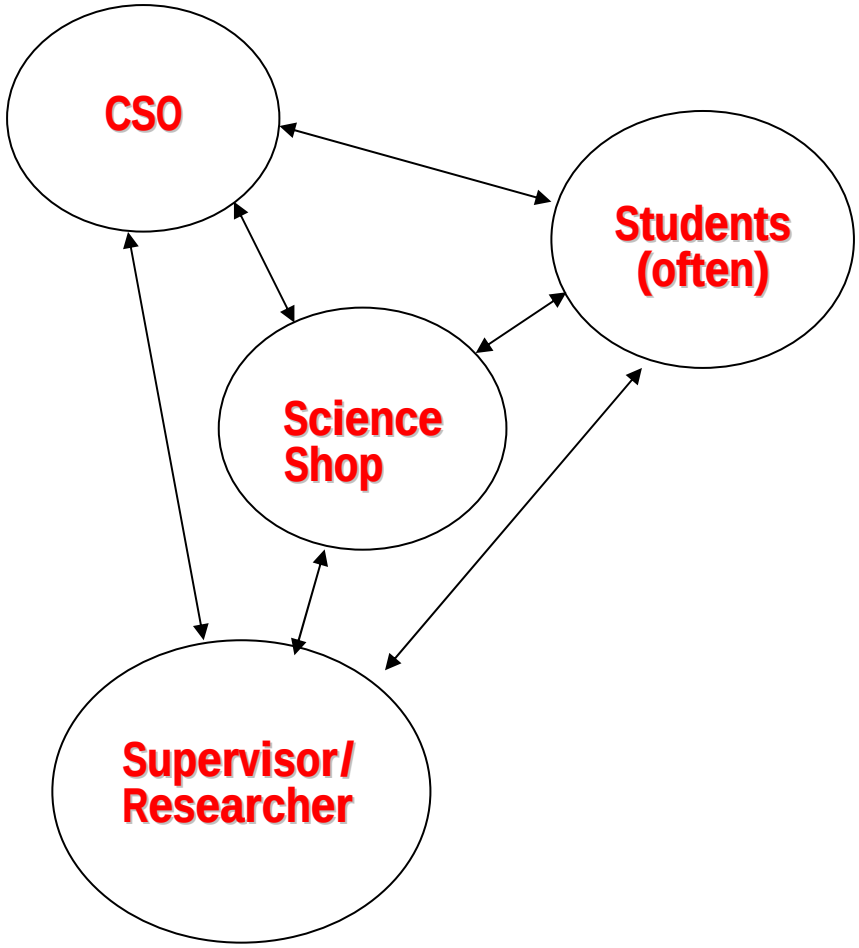
City council questioned the results

Professor said the results were correct

The school did not build near highway

The impact of the research unclear

The Science Shop model for co-operation



The motives of the involved partners:

Civil society organisation:
Support for problem solving

Students:
Part of education: course or thesis
Social interest: Useful research
Development of competences

Researchers/Supervisors:
Interesting projects for students
Access to data
New research themes

Science Shops:
Development of co-operation

What is a Science Shop?

A concept for community-based research:

- A Science Shop provides independent, participatory research support in response to concerns experienced by civil society (The international Science Shop network, 2001)

From the 70's to the 00's

70's: Netherlands, USA

80's: Australia, Denmark, England, Northern Ireland, Germany, Austria, France, Belgium

90's: Israel, Canada, Spain, Romania, Norway, New Zealand, Malaysia, Czechoslovakia, South Korea, South Africa

00's: Belgium (renewed), France (renewed), South Korea (renewed), Portugal

2005 initiatives: Greece, Estonia, Latvia, Iceland, Japan, Wales, Scotland, Ireland, Turkey

Organisation forms

- **University**
  - *Central Office*
  - *Faculty Office*
- **NGO. Not-for-profit consultancy**
  - *Separate entity*
  - *University links*

Demand and/or supply driven

The Science Shop research

Research done by	In % of science shops
science shop staff	71
students - voluntary - course/diploma	 34 71
researchers - voluntary - paid	 45 48

www.livingknowledge.org

International journal: Living Knowledge

International electronic newsletter

International conferences

(LK3: 30 Aug – 1 Sept 2007)

Research projects

Networking: list server

Support from the European Community (EU)

Living Knowledge

The International Science Shop Network

Steps in DTU Science Shop projects

1. Group/organisation approaches Science Shop
2. Dialogue about the knowledge need and its background

   Non-commercial?

   => Accept?
3. Strategy for handling the request:
   A. Refer to previous report or governmental institution
   B. Short advice
   C. Student project
   D. Research project
   E. Advisory group
4. Conducting the project
5. Strategy for implementing/embedding/communicating

Health related knowledge needs - an overview

- **Different arenas:**
  - The society
  - The community
  - The work place
- **Different stakeholders:**
  - The community-based organisation (CBO)
  - The non-governmental organisation (NGO)
  - The single citizen
  - The single professional
- **Different types of knowledge need:**
  - Documentation: the pollution of local ponds
  - Knowledge enhancement: the impact of traffic pollution on children
  - Development of solutions and capacity: development of citizen proposals for new community facilities

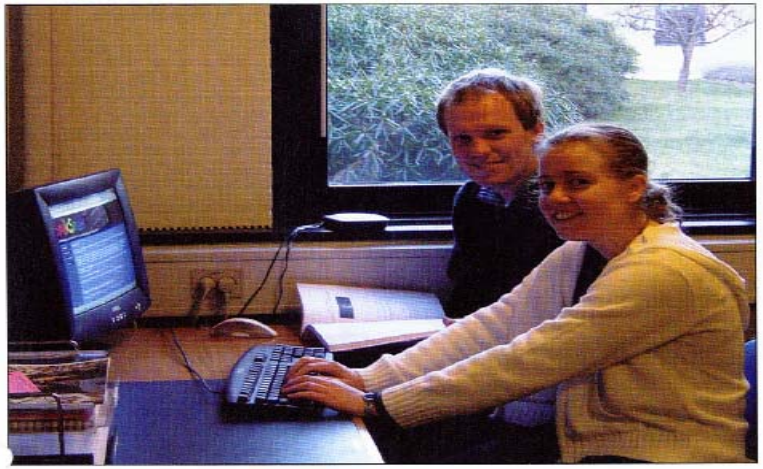
Health related CSO knowledge needs at DTU (1)

- Local community organisation: Traffic and transportation: traffic survey in community
- Local community council: Urban renewal: development: plans for common facilities in the community
- Local community organisation: Energy: health impact from local wood fired stoves
- Non-profit city bike initiative: Design: design of new bike stands for city bikes

Health related CSO knowledge needs at DTU (2)

- Disabled person and organisation: Easy access: design of equipment that makes access to camping wagons easier for a person in a wheel chair
- Consumer organisation: Consumers and food: assessing the uptake of pesticide residues in food; knowledge about functional food
- Trade union: Work environment: exposure to chlorine compounds from hot therapeutic baths
- Trade union: noise measurements and noise reductions in day care institutions
- Health professional: Computer program for education for children with speaking difficulties

Students develop programme for children with speaking difficulties. Need experienced by pedagogic. Program available at web



SnikSnak

PC-spil til børn med talevanskeligheder udviklet som del af et spændende midtvejsprojekt via Videnskabsbutikken

At computerspil er sjovt, er der ingen tvivl om hos de fleste børn, men et computerspil udviklet som en del af et midtvejsprojekt på DTU kan også gøre livet lettere for talepædagogers arbejde med talevanskeligheder hos børn.

En del børn i Danmark har talevanskeligheder, og børnenes problemer er meget individuelle. Et eksempel kan være, at et barn ikke kan sige 's'-lyde og derfor siger "dommerfugl" i stedet for "sommerfugl".

Børnene undervises af talepædagoger, enten i kommunalt eller amtsligt regi

Et skærmbillede fra spillet, hvor børnene opfordres til at tale så meget som muligt.

mængden af ord, lyde og billeder. Målet

- At projektet er blevet til i samarbejde med Videnskabsbutikken på DTU har givet os mulighed for at lave et program, der reelt er behov for, og det har været en stor motivationsfaktor, fortæller to af de studerende, Tine og Jacob.

Efter hvert endt spil kommer den såkaldte Pauseklovn, hvilket er en animationssekvens med musik og tale, hvor barnet opfordres til at rejse sig og bevæge sig. Dette er indført på opfordring af flere talepædagoger for at skabe variationer, der bibeholder børnenes koncentration.

Projektet har givet os mulighed for at anvende teori og teknikker fra mange forskellige grene af softwareudvikling. Vi har konstrueret et stykke software fra bunden, hvilket har involveret en mængde analysearbejde af problemet, design af hvordan programmet skal se ud og en grundig test af det endelige program, både tekniske test og brugervenlighedstest. Vi har derudover også beskæftiget os med problemer vedrørende distribution, installation, licenser og rettigheder for at opnå et brugbart produkt.

Brugervenlighed i højsædet

Brugervenlighed har været en central del af projektet, da programmet skal kunne anvendes af brugere med meget forskellig computererfaring og af både voksne og børn.

For at sikre dette har vi benyttet os interaktionsdesign-teknikker og asp af menneske-computer interaktio har især givet sig til udtryk ved involveret slutbrugere gennem jektet, såkaldt 'participatory

Students helped local community council visualise their ideas about new public facilities as part of urban renewal on empty spaces

<u>Impact:</u> New culture house etc. The Copenhagen city administration started taking the local council serious. Now part of city experiment with local planning

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BYPLANLÆGNING TORE PLOUGHELD

Lokalplanlægning fra DTU giver øget borgerindflydelse

Studerende har lavet byplanlægning i Vanløse til gavn for borgerne

„De studerendes lokalplan er en hel lille Bibel for os. Den har i høj grad været med til at give Vanløses borgere en forstærket indflydelse på lokalplanlægningen i en tid, hvor vi diskuterer hvordan bymidten kan fornyes samtidig med at Vanløses pronvinspræg bevares."

Ordene kommer fra Erik Honoré, formand for Vanløse Grundejersammenslutning. Han har de seneste år sammen med sin forening via Videnskabsbutikken på DTU fået hjælp og nye idéer fra studerende på DTU til at udvikle små og store projekter som led i en ny, samlet lokalplan for centrum af Vanløse, der skal gøre hele bymidten mere levende og attraktiv, men samtidig bevare Vanløses særpræg.

En række industrigrunde omlægges i disse år fra erhverv til boliger, parkeringspladser og nye udendørsarealer, og nye faciliteter til unge iværksættere og værested for idrætsudøvere af alle slags står også højt på ønskelisten. Så langt står et nyt kulturhus færdig, og to byggegrunde er tilbage. Og grundejerformanden i Vanløse er særdeles tilfreds med de foreløbige resultater:

Samarbejde gav gode værktøjer

„Som grundejere og borgere vil vi selvfølgelig gerne være med til at sætte et fingeraftryk på udviklingen i området. Men det er ofte svært at blive taget alvorligt af kommunen, fordi vi, der repræsenterer borgerne, ikke er eksperter, og der derfor godt kan komme temmelig luftige påstande og idéer frem. Men netop samarbejdet med de studerende på DTU har givet os nogle rigtig gode værktøjer til at håndtere byplanlægningen, og vi har næsten allerede nået mere, end vi drømte om."

Erik Honoré nævner det nye kulturhus som et konkret eksempel på et projekt, der blev udarbejdet af DTU's studerende på baggrund af borgernes ønsker, båret videre fra borgerne til politikerne og til sidst realiseret til et færdigt hus. Et nyt helsecenter, der skal samle en række læge- og sundhedsfunktioner under ét tag, på forslag fra DTU-studerende, er også blevet særdeles godt modtaget blandt de adspurgte borgere, fortæller Erik Honoré.

„Der vil altid være en svær balancegang mellem en bygherre, der skal tjene penge på sine projekter og så borgerne, der har en masse idéer til, hvordan man kan udnytte de forskellige arealer og bygninger. Men alene det, at DTU's lokalplansforslag har været med til at skabe diskussioner blandt borgerne selv og givet dem medindflydelse har været rigtig godt."

I det hele taget har borgerne været inddraget meget og er blevet spurgt i større og mindre undersøgelser i forbindelse med udarbejdelsen af de alternative lokalplaner. DTU's seneste rapport blev også offentliggjort i lokalpressen og gav anledning til mange gode diskussioner om fremtidens udformning af Vanløse centrum.

Realistisk midtvejsprojekt

Marie Sellebjerg Møller, Vibe Gry Nielsen og Mette Frølunde, der alle studerer polyteknik på DTU står bag den seneste lokalplan. Den blev udarbejdet over et helt semester, fra februar til juni 2005.

„Vi ville gerne lave et realistisk midtvejsprojekt, der involverede rigtige mennesker. Derfor var det spændende at deltage," fortæller Marie Sellebjerg Møller, der for nylig besøgte Vanløse for at se, hvad der var sket.

„Jeg blev meget overrasket over, at der er sket så meget. Det ser helt klart ud som om,

The knowledge production in community-based research – shaped by the participants and the context

- *Interactive knowledge production* between students/researchers, the Science Shop and the CSO
  - *the speaking difficulty and the urban planning project*
- *Knowledge supply*, where researchers or students produce new knowledge, which is transferred to the CSO
  - *the health and traffic project (focus on the independency of the research)*

Contribution to capacity building in CSOs: Enhancing the capacity for changing society (1)

- CSOs provided with knowledge ….and are (maybe) able to implement results in their activities or services
- CSOs bring forward the *scientific* research and its results in order to raise interest and support around a topic.
  - Although a scientific report might not be enough to convince other stakeholders

Contribution to capacity building in CSOs: Enhancing the capacity for changing society (2)

- CSOs learn to apply scientific methods or theories used by the researchers or the students (focus group interviews)
- Provision of organisational frames and experts for workshops and other events
- Showing CSOs opportunities for funding

The contribution of science shops to the role and the tasks of the universities

- …to the competencies of the involved students and thereby the competencies of the future professionals
- …to the learning and research methods at the universities by making them more participatory and problem-based
- …to development of new education and research themes at the universities

Many relations University – Society - adding a new dimension

Target Group	Facility
■ **Individuals** **(e.g. students, seniors, pupils, other individuals, general public)**	***Courses*** ***Public Courses,*** ***Lectures, Science Week, Open House,*** ***High-school desk*** ***PR Department***
■ **Community Groups** ■ **NGOs** ■ **Non-profit sector** ■ **Local authorities**	***Science Shop/*** ***(Internships)***
■ **SMEs** ■ **Regional authorities**	***Transfer Bureau/ Business Service Centre/ internships***
■ **National authorities** ■ **Industry**	***Contracts*** ***Paid chairs***

Student competence from science shop work

- Translating from practice to theory and from theory back to practice.
- Understanding and appreciation of citizens' expertise
- Co-operation skills: the student co-operates with people outside the university
- Project and task management skills
- Writing skills

Strategies for research developm. from Science Shops (1)

- Science shops as antenna about new problems and needs
  - *Medicine and pregnancy (Groningen, The Netherlands)*
- Science shop as incubator for new research area
  - *Organic food at DTU, Denmark*
- Research departments take up participatory research methods through interaction with science shop
  - *Medicine Science Shop, Groningen, NL*

Strategies for research developm. from Science Shops (2)

- Research departments take up community based research themes based on
  - *Joint funding with science shop (Tilburg, NL: Ph.D. grants)*
  - *Government funding (Canada: research council finances Community-University Research Alliances)*
- Science shop as centre for community based research
  - *Centre for Urban Research & Learning, Loyola University, U.S.*

Demand and supply in relation to the science shop concept

- Do CSOs see a need for co-operation with the universities in their strive for ‘a better society’?
- Are CSOs sceptical about the universities and prefer to co-operate with independent researchers or build capacity themselves?
- Are there need and interest for better opportunities for students to work problem- and project oriented?
  - *with topics from civil society?*
- Is there need and interest for more orientation in university research towards civil society needs
  - *as part of the societal relevance of research?*

Supplementary slides

Different approaches to science and civil society

- Public understanding of science – should be improved. The deficit model
- Dialogue between researchers and the public about risks of existing technologies – e.g. genetic modification
- Citizen science: civil society organisations build knowledge and strategies themselves – e.g. around specific diseases and sustainable development

From Mode 1 towards Mode 2 knowledge production

- Increased focus on the interaction between research institutions and society in the production of knowledge: Mode 1 => Mode 2
- Mostly focus on business-research co-operation
- **However…**many experiences show that co-operation between university and CSOs can contribute to the research, research agenda and research methodologies at universities

=> *Civil society and Science Shops should have a role*

Be aware and careful about some new concepts

- Upstream participation – citizens involved as new areas emerge in scientific and technological development – e.g. nanotechnology
- User driven innovation – integration of users' needs in product development
- *Who sets the agenda?*

Model for analysis of Science Shop projects

The social context of the problem:	• The knowledge need of the CSO • The strategy of the CSO in approaching the Science Shop • The aim of the project co-operation
The co-operation process:	•The shaping of the project co-operation (aim, methodology etc.) •The knowledge production (interaction among the involved actors)
The results, outcome and impact of the project:	• The strategy of the CSO and the other project partners for application of the results to fulfil the aim

Science shop as incubator: the embedding of organic food production as research area at DTU

Period	Development in societal discourse related to organic food production	The activities of the Science Shop and the affiliated community research centre	The interest of the 'established' researchers at the university
1985-1990	•Organic agriculture starts growing on the initiative of city people moving into the countryside	•The Science Shop receives questions from agriculture organisations •Projects done as student projects	•Food and environmental researchers as supervisors on Science Shop projects
1990-1998	•Organic agriculture increases due to problems with pesticides in ground water •Conventional farmers converts to organic farming in bigger numbers	•Apply for funding from national organic food research programme => Science Shop develops own research group	•Science Shop invited to give lectures at food technology course •Food researchers not interested in participating in research project on organic food processing
1998-	•Processed organic food products increase	•Apply for funds from national food research programme •Suggests consumer organisation to plan research project on consumer policy	•Food researchers agree to co-operate with organic food research group on project on care in organic food processing

Barriers to university co-operation with civil society through Science Shops (1)

- Researchers are under a constant time pressure: research has to lead to publications, and teaching obligations has to be fulfilled => need for tangible incentives
- Most of the Science Shop projects contribute “only” to “grey” literature
- Projects might be seen as based on a practical problem rather than on a scientific problem => no scientific interest in the projects

Barriers to university co-operation with civil society through Science Shops (2)

- Universities are more interested in “big projects” with a high amount of external funding and co-operation with companies and governmental institutions => smaller CSO-related projects not attractive

An application for a Science Shop should explain (1)

- Why a Science Shop at the university: potential benefits for the university and the society
- Potential user groups and their need for knowledge. *Pilot projects*
- Experiences from other Science Shops
- Activities in the Science Shop
- Affiliation of the Science Shop to the university: Organisation and management

An application for a Science Shop (2)

- How can a Science Shop with students project work fit into the curricula of the university?
- How can the scientific personnel be involved in the Science Shop work: As co-ordinators? As supervisors? As researchers?
- Budget and financing: University funding? External funding?

Science Shop activities to consider while planning Sc. Sh. (1)

- The need and the possibilities for these different activities should be considered :
- Short term advice: Answering by the Science Shop, using the scientific personnel at the university; referring to external sources
- Student project work
- Advisory groups for dialogue with civil society groups on ongoing projects

Science Shop activities to consider while planning Sc. Sh. (2)

- Research projects
- Development of new areas for education and research:
  - within empirical fields
  - within theories and methods for co-operation with civil society groups and organisations.

Some first steps...

- Creating a planning group
  - Scientific staf
  - Administrative staff
  - University Management
  - Students
- Approaching civil society organisations and ask about possible project topics

Funding models for Science Shops (1)

Full funding by university:

- The universities provide direct financial support for Science Shops.
- The Science Shop staff can be dedicated Science Shop staff or scientific staff, who is conducting part of their teaching and research in the Science Shop.
- The project research is carried out by
  - students as part of their education (earning ECTS points) and by the supervisors as part of their ordinary work
  - the Science Shop staff.

Partly funding by university:

- If universities are unable to finance the full cost of a Science Shop:
  - part-funding by attracting external funding from government or European programmes or private and charitable grants.

Funding models for Science Shops (2)

Social entrepreneurship:

- Some Science Shops act as social entrepreneurs supporting socially beneficial research with NGOs
  - Staff conducts profitable research or other activities with organisations and funding agencies, which can pay market costs

Co-funding with NGOs for research and evaluation:

- Science Shops co-operate with NGOs when the latter are making applications for funding
  - …by having Science Shop research written into the bid to contribute to the monitoring and evaluation of activities

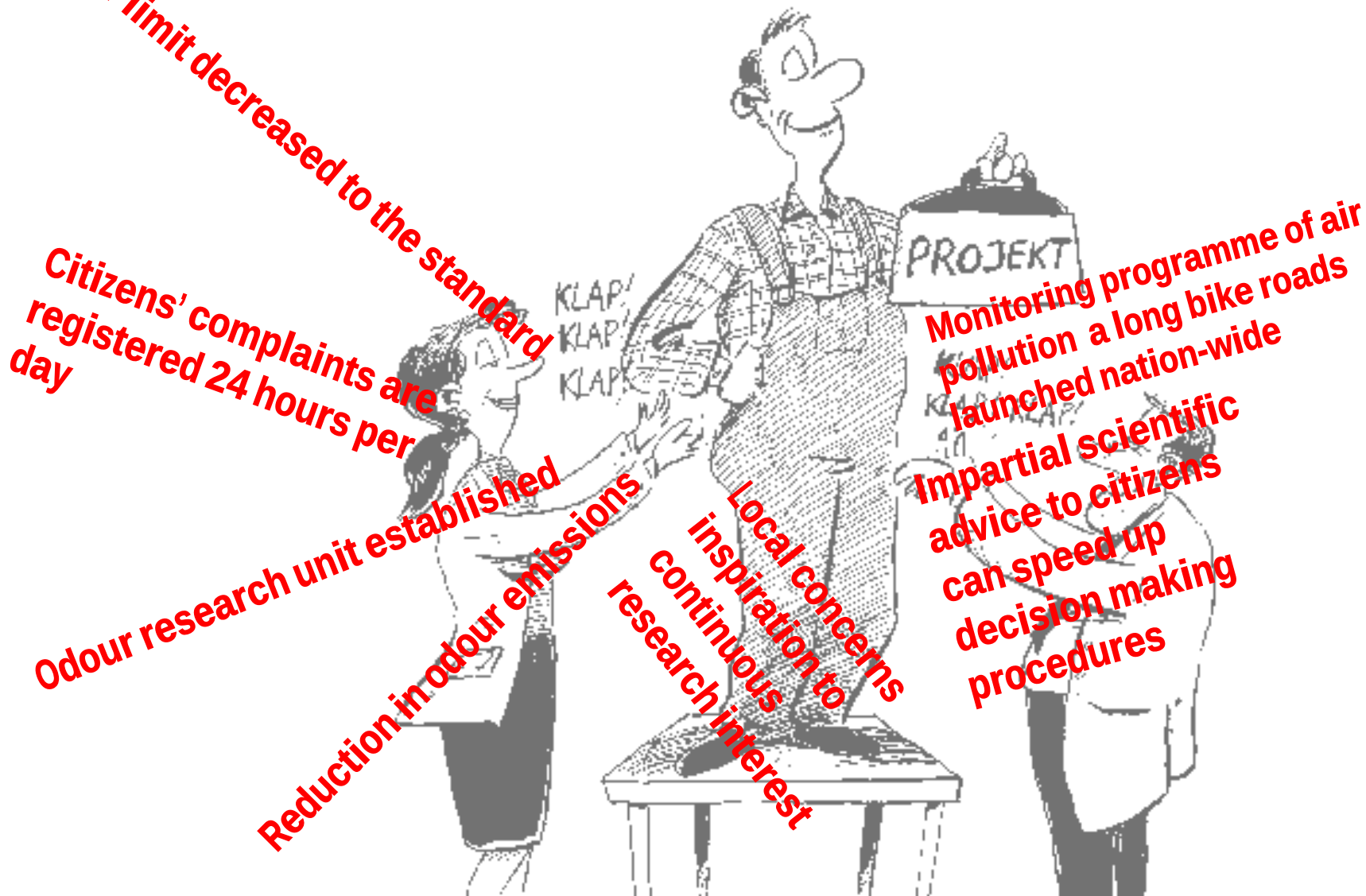
Studentships and research grants:

- Universities or funds provide dedicated studentships and grants for Master level students or researchers in Science Shops.

Same field – different knowledge interests: food and agriculture in DTU Science Shop

Civil Society Organisation (CSO)	**Topic**
Consumer NGO	Knowledge about the impact of genetic modified plants
Consumer NGO	The daily intake of pesticides
Consumer NGO	Consumer policy for organic food
Organic agriculture NGO	Quality of organic food
Day-care institution	The use of organic food
Environmental NGO	A strategy for organic sugar
Environmental NGO	The role of small entreprises in organic food production

Impacts from other Dutch air pollution projects



Odour limit decreased to the standard

Citizens' complaints are registered 24 hours per day

Odour research unit established

Reduction in odour emissions

Local concerns inspiration to continuous research interest

Monitoring programme of air pollution a long bike roads launched nation-wide

Impartial scientific advice to citizens can speed up decision making procedures